REMARKS

Applicants have cancelled the pending claims and have added new claim 46. This claim is drawn to a purified polypeptide consisting of amino acids 1-188 of SEQ ID NO:1. This sequence is the CD11b A domain sequence shown in Figure 5. As explained in the specification (see Figure 5 and see page 6, lines 22-24), the invariant Ile (at amino acid 316 of mature CD11b or at amino acid 332 of full-length CD11b) is indicated by an arrow in Figure 5. Thus, the 191 amino acid peptide of SEQ ID NO:1 corresponds to amino acid 144-334 of full-length CD11b (or amino acids 128-318 of mature CD11b). Claim 14(c) referred to a polypeptide comprising amino acid 144-331 of CD11b – the A domain up to, but not including the Ile at 332. Thus, new claim 46, which replaces Claim 14(c), is drawn a polypeptide consisting of amino acids 1-188 of SEQ ID NO:1, which corresponds to 144-331 of full-length CD11b.

Drawings

Having reviewed the drawings filed February 20, 2002, it does appear that Fig. 2A submitted February 20, 2002 does not match the originally filed Figure 2A. Applicants regret the error and will file corrected drawings under separate cover.

Rejections Under 35 U.S.C. §112, Second Paragraph

The examiner rejected claim 14 as indefinite. The examiner argued that reference to particular amino acid positions in protein is indefinite unless there is a reference to a particular SEQ ID NO:1.

Claim 14 refers to SEQ ID NO:1. As explained in the specification (see Figure 5 and see page 6, line 22-24), SEQ ID NO:1, which includes 191 amino acids, corresponds to amino acids 144-334 of full-length CD11b. The invariant Ile (at amino acid 316 of mature CD11b or at amino acid 332 of full-length CD11b) is indicated by an arrow in Figure 5 and is located at amino acid 189 of SEQ ID NO:1. Thus, the Ile at 189 of SEQ ID NO:1 corresponds the crucial Ile at amino acid 332 of full-length CD11b. Moreover, the Cys at amino acid 1 of SEQ ID NO:1 corresponds to amino acid 144 of full-length CD11b. As explained at page 7, lines 12, CD11b

has a 16 amino acid leader and thus the Ile at 316 referred to in the working examples is with reference to mature CD11b. Thus, the crucial Ile is located at amino acid 316 of mature CD11b.

In view of the fact that claim 14 refers to a specific sequence clearly disclosed in the patent application as filed, applicants request that this rejection be withdrawn.

Rejections Under 35 U.S.C. §112, First Paragraph (written description)

The examiner rejected claim 14 as failing to meet the written description requirement. The examiner stated that the specification does not provide sufficient support for claims drawn to "a polypeptide comprising amino acids 144 to 320 of CD11b α subunit wherein the Phe at amino acid 313 and the Ala at amino acid 320 have been replaced by Cys" or "a polypeptide comprising amino acids 144 to 320 of CD11b α subunit wherein the Val at amino acid 315 and the Ala at amino acid 320 have been replaced by Cys" in claim 14. Claim 14 has been cancelled and new claim 46 does not refer to these polypeptides.

Rejections Under 35 U.S.C. §112, First Paragraph (enablement)

The examiner rejected claim 14 as not enabled. The examiner objected to the comprising language in the claims. The Examiner also stated that one cannot reasonably predict the effect of amino acid changes at position 332 – other than the Gly and Ala substitutions in the Examples.

Claim 46 is drawn to a polypeptide consisting of the A domain of CD11b up to, but not including the crucial Ile (amino acids 1-189 of SEQ ID NO:1). As explained at pages 9-10 of the specification, Applicants found that a peptide having amino acid 123-316 of mature CD11b (139-332 full-length CD11b) crystallized in the low affinity closed confirmation. In contrast, a peptide having only amino acid 123-315 of mature CD11b (139-331 full-length CD11b) crystallized in the high affinity, open confirmation. The specification explains that the crucial Ile holds protein in the low affinity, closed conformation. More importantly, the peptide having only amino acid 123-315 of mature CD11b bound to three different ligands of CD11b while a somewhat longer peptide that included the crucial Ile did not bind to any of the three ligands. In view of these teachings, the specification teaches one how to make a use a peptide consisting of

amino acids 1-188 of SEQ ID NO:1 (A domain up to, but not including the crucial Ile). Moreover, one skilled in the art would expect this peptide to bind to CD11b ligands and assume the open conformation.

Obviousness-Type Double Patenting

The examiner provisionally rejected claim 14 under the judicially created doctrine of obviousness-type double patenting in view of claims 17-19 of U.S. Application No. 10/144,259 and claims 46-50 of U.S. Application No. 09/805,354. Applicants will address this issue upon notification that there are allowable claims in the present application.

Enclosed is a check for check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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